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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,353	09/19/2003	Chandramouli Visweswariah	YOR920030403USI	9338
7590	12/11/2007			
Louis J. Percello Intellectual Property Law Dept. IBM Corporation P.O. Box 218 Yorktown Heights, NY 10598			EXAMINER KIK, PHALLAKA	
			ART UNIT 2825	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/666,353

Applicant(s)

VISWESWARIAH,
CHANDRAMOULI

Examiner

Phallaka Kik

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2003 and 11 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/14/03 and 9/11/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action responds to the Application and preliminary amendment filed on 9/19/2003 and IDS filed on 9/19/2003 and 9/11/2007. Claims 1-49 are pending.

Specification

2. The disclosure is objected to because of the following informalities: the referenced Application numbers are missing (see page 1, lines 14 and 18 of Applicant's specification).

Appropriate correction is required.

Claim Objections

3. **Claims 1-43,45-49** are objected to because of the following informalities:

As per **claim 1**, "the topology" (line 2) should be --a topology-- for proper antecedent basis; "a parameterized delay model, the" (line 9) should be --parameterized delay models, each-- to provide for proper antecedent basis for "the parameterized delay models" as recited in dependent claims 16-18; "the form" (lines 14) should be --a form-- for proper antecedent basis.

As per **claim 3**, "the form" (line 3) should be --a form-- for proper antecedent basis.

As per **claims 4 and 5**, --further-- should be inserted after "process" (line 1) to define the further limitations; "the form" (line 3) should be --a form-- for proper antecedent basis.

As per **claims 6,7,9**, --further-- should be inserted after "process" (line 1) to define the further limitations.

As per **claim 8**, --further-- should be inserted after "process" (line 2) to define the further limitations.

As per **claim 22**, "the steps" (line 1) should be --steps-- for proper antecedent basis.

As per **claim 24**, "the statistical slew" (line 1) should be --a statistical slew-- for proper antecedent basis; "the form" (lines 2-3) should be --a form-- for proper antecedent basis.

As per **claim 43**, "the statistical slack" (line 1) should be --a statistical slack-- for proper antecedent basis; "the form" (lines 2-3) should be --a form-- for proper antecedent basis.

As per **claims 2-21,23-43**, the claims are also objected to for incorporating the above errors into the claims by claim dependency.

As per **claim 45**, "the steps" (line 1) should be deleted since the claim is a "system" claim.

As per **claims 46-47**, "the steps" (line 2 and lines 1-2 respectively) should be --steps-- for proper antecedent basis.

As per **claim 48**, "the steps" (line 2) should be --steps-- for proper antecedent basis.

As per **claim 49**, "the method" (line 1) should be --the process-- for proper antecedent basis; "the steps" (line 2) should be --steps-- for proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 20-21,31** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural/functional cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: it is not understood how "clock-edge information" (line 1 claim 20) and "a guard time of each timing test" (line 2 of claim 21 and line 1 of claim 31) relate the rest of the elements of the system (i.e., elements (a)-(e)) or steps (a)-(d) respectively).

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. **Claims 48-49** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter, wherein it is not clear what the "computer output product" is, which could be a computer program per se, or data structure per se, which does not fall in any one of the four categories of statutory inventions (i.e., process, machine, manufacture or composition of matter).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

9. **Claims 1-49** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,111,260.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are obvious subset of the patented claims, wherein propagation/determining and outputting of the statistical arriving times of one or more nodes or at each of the nodes of the electrical circuit, in which the statistical arrival times being a weighted sum of probability distributions of one or more of the sources of variations, are covered by patented claim 16, wherein the

netlist and assertions and variability being received as presently claimed, are results from the steps/means (a)-(c) of the patented claims 1,17,19, wherein the determining/outputting process or propagating steps/means of the present claims are obvious subsets of the steps/means (d)-(e) of the patented claims, which propagate and produce these outputs.

10. **Claims 1-49** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of copending Application No. 11/503,200. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are obvious subset of the claims of the co-pending application, wherein propagation/determining and outputting of the statistical arriving times of one or more nodes or at each of the nodes of the electrical circuit, in which the statistical arrival times being a weighted sum of probability distributions of one or more of the sources of variations, are covered by co-pending claim 16, wherein the netlist and assertions and variability being received as presently claimed, are results from the steps/means (a)-(c) of the co-pending claim 1, wherein the determining/outputting process or propagating steps/means of the present claims are obvious subsets of the steps/means (d) of the co-pending claim which propagates and produces these outputs.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

12. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Allowable Subject Matter

13. **Claims 1-49** would be allowable if the rejections of the obviousness-type double patenting rejections are overcome; if claims 1-43,45-59 are rewritten or amended to overcome the objections due to the noted minor informalities; if claims 20-21,31 are rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action; and if claims 48-49 are rewritten or amended to overcome the rejection under 35 USC 101 set forth in this Office Action.

14. The following is a statement of reasons for the indication of allowable subject matter:

As per **claims 1-49**, the claims recite the inventive features in which the statistical arrival time (of one or more nodes of the electrical circuit) being in the form of a weighted sum of probability distributions of one or more of the sources of variation, is determined and outputted and/or propagated at each of the nodes, as claimed as part of the system/method/computer memory/computer output product as claimed, which the prior arts made of record failed to teach or suggest. In particular, the prior arts made of record teach various methods/systems for analyzing timing of electrical circuits,

including using statistical timing analysis, taking into account process variations (see especially **Liou et al.**, "Fast Statistical Timing Analysis By Probabilistic Event Propagation", pp. 661-666, Design Automation Conference 2001, especially pp. 662-664; **Scheffer**, "Explicit Computation of Performance as a Function of Process Variation", TAU '02, 2002, pp. 1-8, especially pages 2, 5-7). However, none of the prior arts made of record teach or suggest the inventive features as claimed. Accordingly, the claimed invention is novel and un-obvious over the prior arts made of record.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phallaka Kik whose telephone number is 571-272-1895. The examiner can normally be reached on Monday-Friday, 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

571-273-8300

/Phallaka Kik/
Primary Examiner, A.U. 2825
December 1, 2007